REMARKS / DISCUSSION OF ISSUES

In the present amendment, claims 1 – 8 are amended, and claim 9 is cancelled without prejudice. No new matter is added.

Claims 1 – 8 are now pending in the application. Claims 1, 3, 4 and 6 are independent.

Claims 1 – 4 and 6 are objected to because of a number of informalities. In the present amendment, claims 1 – 4 and 6 are amended to obviate this objection. No new matter is added. Withdrawal of the objection to claims 1 – 4 and 6 is respectfully requested.

35 U.S.C. 103

Under 35 U.S.C. 103(a), the Office Action rejects claims 1, 2, 5 and 9 over the background of Applicants' specification (hereby referred to as the background), in view of Park (GB2331207A).

Applicants submit that for at least the following reasons, claims 1, 2, and 5 are patentable over the background and Park, either singly or in combination. Claim 9 is cancelled obviating the rejection.

For example, claim 1, in part, requires:

> "*assigning different spreading codes ($g_1^{(k)}$, $g_2^{(k)}$ ... $g_H^{(k)}$) from a defined set (G_i).*"

In the Office Action, page 3, the Office alleged that the vector (2) and page 2, line 9 – 12 of the background discloses the above claimed features. Applicants respectfully disagree.

Applicants submit that the vector (2) is a spreading code having a length P that is assigned for the k^{th} connection, and the elements c_0 through c_{P-1} are components of the vector $c^{(k)}$. Although page 2, line 9 – 12 of the background discloses that among the different connections, each connection is assigned a different spread code, the background does not disclose that different spreading codes from a defined set are assigned for the connection. In the background, the spreading code $c^{(k)}$ used is the

same over the entire connection. In contrast, the claimed invention has different spreading codes ($g_1^{(k)}$, $g_2^{(k)}$ ... $g_H^{(k)}$) from a defined set (G_i) assigned for the k^{th} connection. Therefore, the background fails to disclose the claimed feature: assigning different spreading codes ($g_1^{(k)}$, $g_2^{(k)}$ ... $g_H^{(k)}$) from a defined set (G_i).

Park discloses that the orthogonal codes having different validity periods for the different channels. However, Park does not disclose the assigning different spreading codes ($g_1^{(k)}$, $g_2^{(k)}$ ... $g_H^{(k)}$) from a defined set (G_i) for the k^{th} connection, as claimed. Furthermore, in Park, each individual channel is assigned a spreading code that is to be used constantly. In contrast, the claimed invention has different spreading codes ($g_1^{(k)}$, $g_2^{(k)}$ ... $g_H^{(k)}$) from a defined set (G_i) assigned for the k^{th} connection. Therefore, Park also fails to disclose the above claimed features.

In addition, claim 1, in part, requires:

> "*wherein the degree of encryption of the k^{th} digital data stream ($d^{(k)}$) is increased during the k^{th} connection through an allocation of a sequence for the application of the different spreading codes ($g_1^{(k)}$, $g_2^{(k)}$ ... $g_H^{(k)}$) and/or a hop interval (I_{hop}) by the k^{th} transmitter.*"

In the Office Action, page 3, it is conceded by the Office that the background does not disclose the above claimed feature.

As discussed above, Park does not disclose the assigning different spreading codes ($g_1^{(k)}$, $g_2^{(k)}$ ... $g_H^{(k)}$) from a defined set (G_i). Therefore, Park naturally does not disclose the allocation of a sequence for the application of the different spreading codes ($g_1^{(k)}$, $g_2^{(k)}$ ... $g_H^{(k)}$). Applicants submit Park's teaching is aimed at the overall communication system, not at the individual channels. Although Park discloses that greater security of the encrypted data is achieved by varying the duration of the validity of the codes, the producing the orthogonal codes is in accordance with a hoping pattern, but is not allocated by each of the individual channels. Therefore, Park also fails to disclose the claimed feature: wherein the degree of encryption of the k^{th} digital data stream ($d^{(k)}$) is increased during the k^{th} connection through an allocation of a sequence for the application of the different spreading codes ($g_1^{(k)}$, $g_2^{(k)}$ ... $g_H^{(k)}$) and/or a hop interval (I_{hop}) by the k^{th} transmitter.

In view of at least the foregoing, Applicants submit that claim 1 is patentable over the background and Park, either singly or in combination. Claims 2 and 5 depend from and inherit all the features of claim 1. Therefore, claims 2 and 5 are patentable for at least the reason that they depend from claim 1, with each claim containing further distinguishing features. Claim 9 is cancelled.

Under 35 U.S.C. 103(a), the Office Action rejects claim 3 over Park in view of the background.

Applicants submit that for at least the following reasons, claim 3 is patentable over Park and the background, either singly or in combination.

For example, claim 3, in part, requires:

> "*establishing a permutation function (S_i) that defines a sequence of the application of the content of a set of spreading codes.*"

In the Office Action, page 5, it is alleged by the Office that the hopping pattern in Park is equivalent to the permutation function, as claimed. Applicants respectfully disagree. Applicants submit that Park only teaches an orthogonal multiple access system that divides the channels according to a hopping pattern of the orthogonal code. The different orthogonal codes have different hopping times for different channels, but the hopping pattern does not define a sequence of the application of the content of a set of spreading codes. Therefore, Park fails to disclose the above claimed features. Applicants submit that the background does not disclose the establishing of a permutation function either. In view of at least the foregoing, Applicants submit that claim 3 is patentable over Park and the background.

Under 35 U.S.C. 103(a), the Office Action rejects claim 4 and 6 – 8 over Bantz et al. (US5394433, hereinafter Bantz) in view of Park.

Applicants submit that for at least the following reasons, claims 4 and 6 – 8 are patentable over Bantz and Park, either singly or in combination.

For example, claim 4, in part, requires:

"*carrying out a comparison to see whether the current value of the interval (n) is greater than the total number (M) of the elements of a permutation function (S_i) which states the positions of the spreading code (g_n) of a set (G_i) of spreading codes that is to be used for encrypting the digital data stream.*"

In the Office Action, page 7, it is conceded by the Office that Bantz does not disclose the above claimed features. As discussed above for claim 3, Applicant submit that Park's hopping pattern is not the claimed permutation function that defines a sequence of the application of the content of a set of spreading codes. Thus, for the similar reasons, Park also fails to disclose the claimed feature: carrying out a comparison to see whether the current value of the interval (n) is greater than the total number (M) of the elements of a permutation function (S_i) which states the positions of the spreading code (g_n) of a set (G_i) of spreading codes that is to be used for encrypting the digital data stream. Therefore, claim 4 is patentable over Bantz and Park. Claims 6 – 8 contain the similar features as discussed above for claim 4. Applicants essentially repeat the above arguments for claim 4 and apply them to claims 6 – 8 pointing out Bantz and Park fail to disclose the claimed features. Therefore, for at least the above reasons, claims 6 – 8 are patentable over Bantz and Park.

Withdrawal of the rejection of claims 1 – 9 under 35 U.S.C. 103(a) is respectfully requested.

Conclusion

In view of the foregoing, Applicants respectfully request that the Examiner withdraw the objection(s) and/or rejection(s) of record, allow all the pending claims, and find the application in condition for allowance. If any points remain in issue that may best be resolved through a personal or telephonic interview, the Examiner is respectfully requested to contact the undersigned at the telephone number listed below.

Respectfully submitted,

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